

**REMARKS**

Entry of the foregoing and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

Claims 1-18 were pending in this application. Claims 1-4 and 18 have been withdrawn from consideration after a preliminary election in a telephone restriction. In this response, claims 5-6 and 16-17 have been amended and claims 19-21 added.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims.

***ELECTION/RESTRICTION REQUIREMENT***

In response to the Restriction Requirement forwarded by the Official Action dated December 16, 2005, Applicants hereby provisionally elect Group I, including Claims 5-17 (drawn to a product) for prosecution in the above-identified application. This election is made with traverse.

It is respectfully submitted that the subject matter of claims 1-18 is sufficiently related that a thorough search for the subject matter of any one group would necessarily encompass a search for the subject matter of the remaining groups. Thus, it is respectfully submitted that the search and examination of the entire application could be performed without serious burden. MPEP §803 clearly states that "If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on its merits, even though it includes claims to distinct or independent

inventions" (emphasis added). It is respectfully submitted that this policy should apply in the present application in order to avoid unnecessary delay and expense to Applicants in duplicative examination by the Patent Office.

The Examiner is respectfully requested to reconsider and withdraw the Restriction Requirement and to examine claims 1-18 in this application.

Should any questions arise in connection with this application, the undersigned respectfully requests that he be contacted at the number indicated below.

***CLAIM REJECTIONS UNDER 35 U.S.C. §102***

Claims 5-17 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Nos. 5,863,640, 5,766,782 or 5,487,625 each to Ljungberg et al. (hereafter "*Ljungberg et al. '640*, *Ljungberg et al. '782* and *Ljungberg et al. '625*, respectively"), or U.S. Patent No. 5,698,314 to Goedicke et al. (hereafter "*Goedicke et al.*") or U.S. Patent No. 5,587,233 to Konig et al. (hereafter "*Konig et al.*") or U.S. Patent No. 5,516,588 to van den Berg et al. (hereafter "*van den Berg et al.*") on the grounds set forth on page 4 of the Official Action. Here, each of these rejections is traversed because the cited references do not teach every element of at least claim 5, the only independent claim at issue here.

Ljungberg et al.:

For example, *Ljungberg et al. '640* does not disclose a coating with crystalline  $\alpha$ - $\text{Al}_2\text{O}_3$  having columnar grains as recited in claim 5. Rather, *Ljungberg et al. '640*

discloses a coating with smooth textured  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> according to several patents including SE 501527, SE application 9304283 (corresponding to US 5,851,687), SE application 9400089 (corresponding to US 5,766,782) (col. 3, lines 18-20 and samples A, B and F of *Ljungberg et al.* '640). Applicants note that SE 501527 corresponds to USP 5,654,035 and USP 5,487,625.

However, the grain structure of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> in each of these referenced documents is not columnar as claimed. USP 5,851,687 discloses "platelike" grains (abstract of '687) and USP 5,766,782 discloses "fine-grained  $\alpha$ -microstructure" (col. 3, line 47 of '782). SE 50152 discloses "fine-grained microstructure" (col. 3, line 13 of USP 5,487,625 and col. 3, line 15 of USP 5,654,035).

Furthermore, the claimed grain structure is not inherent in these references. To be inherent, the asserted inherent feature must necessarily result from the prior art. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

Here, the grain size is not inherent because grain size/shape for  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> can take many forms, not just columnar. For example, the grain size/shape for  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> depends on the deposition technique, such as PVD, PACVD or CVD, and on the process parameters. In general, CVD  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> has coarser grains than plasma processes (PVD and PACVD) - CVD  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> can be either columnar or close to equiaxed; PVD and PACVD results in much smaller grain sizes than CVD and columnar structure.

Further and for example, if a columnar layer has a column diameter of about 1.5  $\mu\text{m}$  and the layer thickness is no more than about 1.5-2  $\mu\text{m}$ , the layer could be considered as equiaxed. However, if the layer is deposited to a thickness of, for example, 7  $\mu\text{m}$  and the column diameter is still about, for example, 1.5  $\mu\text{m}$ , the layer is rather to be considered as columnar. So there is also a thickness consideration in finding a grain size/shape inherent. Such considerations are not a part of the present rejection.

Thus, comparing the disclosure in *Ljungberg et al.* '640 (and the disclosure in the noted documents referenced by *Ljungberg et al.* '640) to the claims of the present application at issue here, the *Ljungberg et al.* '640 patent does not specifically mention that the disclosed  $\alpha\text{-Al}_2\text{O}_3$  layer has columnar grain structure, and such a grain structure as claimed is not inherent, e.g., is not necessarily so, in the references' disclosures, based on the noted variations in grain structures for  $\alpha\text{-Al}_2\text{O}_3$ . In light of at least these differences, Applicants respectfully submit that an anticipatory rejection is improper since *Ljungberg et al.* '640 does not teach all of the elements of the claim. See MPEP § 2131.

In another example, *Ljungberg et al.* '782 discloses "fine-grained  $\alpha$ -microstructure" (col. 3, line 47 of '782). Comparing the disclosure in *Ljungberg et al.* '782 to the claims of the present application at issue here, the *Ljungberg et al.* '782 patent does not specifically mention that the disclosed  $\alpha\text{-Al}_2\text{O}_3$  layer has columnar grain structure and there is no basis provided for asserting that the claimed grain structure is inherent in this reference. In light of at least these differences, Applicants respectfully

submit that an anticipatory rejection is improper since *Ljungberg et al.* '782 does not teach all of the elements of the claim. See MPEP § 2131.

In still another example, *Ljungberg et al.* '625 does not disclose a coating with crystalline  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> having columnar grains as recited in claim 5. Rather, *Ljungberg et al.* '625 discloses "fine-grained, preferably textured layer of single phase  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>" (col. 3, lines 6-7).

Comparing the disclosure in *Ljungberg et al.* '625 to the claims of the present application at issue here, the *Ljungberg et al.* '625 patent does not specifically mention that the disclosed  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> layer has columnar grain structure and there is no basis provided for asserting that the claimed grain structure is inherent in this reference. In light of at least these differences, Applicants respectfully submit that an anticipatory rejection is improper since *Ljungberg et al.* '625 does not teach all of the elements of the claim. See MPEP § 2131.

Goedicke et al.:

*Goedicke et al.* merely discloses the deposition of a layer with  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> microstructure (abstract, claim 1). However, as there are several grain structures for  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, the disclosure in *Goedicke et al.* to a layer with  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> microstructure, by itself, is not sufficient to anticipate the claim 5 features. Thus, because *Goedicke et al.* does not "necessarily" disclose the claimed columnar grain structure, Applicants respectfully submit that an anticipatory rejection is improper since *Goedicke et al.* does not teach all of the elements of the claim, either expressly or inherently. See MPEP § 2131.

Konig et al.:

*Konig et al.* discloses “fine crystalline  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> and/or  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> with a grain size of  $\leq 50$  nm” (col. 2, lines 47-48). In contrast, claim 5 recites that the  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> has columnar grains with an average grain width of from about 0.1 to about 1.1  $\mu$ m. Comparing the disclosure in *Konig et al.* to the claims of the present application at issue here, the *Konig et al.* patent does not disclose the claimed columnar grain with the claimed grain size. In light of at least this difference, Applicants respectfully submit that an anticipatory rejection is improper since *Konig et al.* does not teach all of the elements of the claim. See MPEP § 2131.

van den Berg et al.:

*van den Berg et al.* discloses a substrate with a fine-crystalline alpha-Al<sub>2</sub>O<sub>3</sub> layer (abstract). The document is silent as to the form of the grain (e.g., equiaxed, columnar). Therefore, the disclosure in *van den Berg et al.* to a layer with fine-crystalline  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, by itself, is not sufficient to anticipate the claim 5 features. Because *van den Berg et al.* does not “necessarily” disclose the claimed columnar grain structure, Applicants respectfully submit that an anticipatory rejection is improper since *van den Berg et al.* does not teach all of the elements of the claim, either expressly or inherently. See MPEP § 2131.

Each of the dependent claims distinguish over the cited documents for at least the same reasons as noted above for independent claim 5.

In addition to the above, Applicants note that the cited documents also do not disclose all of the features of each of the dependent claims. For example, none of the cited documents disclose a CBN or diamond body as presented in claim 6, and some of the cited documents do not disclose both a Ti(C,N) layer and a  $TiC_xN_yO_z$  layer as presented in claims 7 and 8. Thus, for at least these additional reasons, an anticipatory rejection of at least dependent claims 6-8 is improper.

#### ***NEW CLAIMS***

Applicants present new claims 19-21. Claim 19 presents material from original claim 5, which has been broadened. Claims 20 and 21 present additional combinations of features of the claimed cutting tool, such as the CBN or diamond body in combination with a coating with  $\alpha-Al_2O_3$  and Ti(C,N) (claim 20) and further with  $TiC_xN_yO_z$  (claim 21), a combination of features not found in the cited documents.

#### ***CITED REFERENCES***

Applicants note that the cited and applied reference U.S. Patent No. 5,587,233 to Konig et al. was not included on a form PTO-892. For completeness of the record, an Examiner provided and initialed form PTO-892 citing Konig et al., and any other documents introduced and cited to by the Examiner, is requested with the next communication.

**CONCLUSION**

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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Date: February 8, 2006

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